

**FINAL STATEMENT OF REASONS  
FOR THE  
BUILDING ENERGY EFFICIENCY STANDARDS  
ADOPTED BY THE  
CALIFORNIA ENERGY COMMISSION  
ON APRIL 23, 2008**

**CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1 AND PART 6**

**UPDATES TO THE INITIAL STATEMENT OF REASONS**

A summary of the changes to current Building Energy Efficiency Standards proposed under this rulemaking are as follows:

**TITLE 24, PART 1, CHAPTER 10 : ADMINISTRATIVE REGULATIONS CHANGES**  
**ARTICLE 1 – ENERGY BUILDING REGULATIONS**

**SECTION 10-102 – DEFINITIONS**

**REFERENCE APPENDICES** is the support document for the Building Energy Efficiency Standards and the ACM Approval Manuals. The document consists of three sections: the Reference Joint Appendices (JA), the Reference Residential Appendices (RA), and the Reference Nonresidential Appendices (NA).

This definition was added to the definitions section. The specific purpose and rationale for this change is that the Reference Appendices are an integral part of the proposed standards and it is necessary for enforceability of the Standards.

**SECTION 10-103 – PERMIT, CERTIFICATE, INFORMATIONAL, AND ENFORCEMENT REQUIREMENTS FOR DESIGNERS, INSTALLERS, BUILDERS, MANUFACTURERS, AND SUPPLIERS**

***Subdivision (a)***  
***Subdivision (a)1***  
***Subdivision 2A***  
***Subdivision 2B***  
***Subdivision 2C***

These sections have been edited in response to substantial public comments on the 45-day language for the purpose of adding clarity to the language describing the compliance documentation reporting and retention by HERS providers. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable.

***Subdivision 3A***  
***Subdivision 3Ai***  
***Subdivision 3Aii***  
***Subdivision 3Aiii***  
***Subdivision 3Aiv***

These sections have been edited in response to substantial public comments on the 45-day language for the purpose of adding clarity to the language describing the compliance documentation reporting and retention by HERS providers. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable.

***Subdivision 3B***  
***Subdivision 3Bi***

**Subdivision 3Bii**  
**Subdivision 3Biii**  
**Subdivision 3Biv**

These sections have been edited in response to substantial public comments on the 45-day language for the purpose of adding clarity to the language describing the compliance documentation reporting and retention by HERS providers. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable.

**Subdivision 4**

This section has been edited in response to substantial public comments on the 45-day language. The specific purpose and rationale for these changes is for clarifying the signature requirements on the Installation Certificate.

**Subdivision 5**  
**Subdivision 5i**  
**Subdivision 5ii**  
**Subdivision 5iii**  
**Subdivision 5iv**

These sections have been edited in response to substantial public comments on the 45-day language for the purpose of clarifying the reporting requirements for the Certificate of Field Verification and Diagnostic Testing. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable.

**Subdivision 5(b)1A**  
**Subdivision 5(b)1B**  
**Subdivision 5(b)2**  
**Subdivision 5(b)3**  
**Subdivision 5(b)4A**  
**Subdivision 5(b)4B**

These sections have been edited in response to substantial public comments on the 45-day language for the purpose of clarifying the Compliance, Operating, Maintenance and Ventilation information to be provided by the builders to the building occupants. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable.

**Subdivision 5(c)**

This section has been edited in response to substantial public comments on the 45-day language for the purpose of clarifying the electronic or paper reporting requirements for the manufactured devices to the building occupants. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable.

**Subdivision 5(d)1**  
**Subdivision 5(d)2**  
**Subdivision 5(d)2**  
**Subdivision 5(d)2B**  
**Subdivision 5(d)2C**  
**Subdivision 5(d)2D**

These sections have been edited in response to substantial public comments on the 45-day language for the purpose of clarifying the roles and responsibilities of enforcement agencies related to building permits, and inspection requirements. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable.

## **SECTION 10-105 – ENFORCEMENT BY THE COMMISSION**

### ***Subdivision (b)***

This section has been edited in response to substantial public comments on the 45-day language for the purpose of clarifying the roles and responsibilities of state agencies that are responsible for the construction and enforcement of the buildings within their jurisdiction. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable when the building is not within the jurisdiction a local enforcement agency.

## **SECTION 10-111 – CERTIFICATION AND LABELING OF FENESTRATION PRODUCT U-FACTORS, SOLAR HEAT GAIN COEFFICIENTS AND AIR LEAKAGE**

### ***Subdivision (a)1***

This subdivision was amended to add language for clarity. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

## **SECTION 10-112 – CRITERIA FOR DEFAULT TABLES**

### ***Subdivision (a)***

This subdivision was amended to clarify that the default fenestration values for U-factor and SHGC are based on NFRC rating procedures and not ASHRAE Tables, which are based on NFRC procedures themselves. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

## **SECTION 10-113 – CERTIFICATION AND LABELING OF ROOFING PRODUCT REFLECTANCE AND EMITTANCE**

This subdivision was amended to provide the correct references for the prescriptive requirements and additions and alterations Sections of the Standards. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

### ***Subdivision (a)***

### ***Subdivision (b)***

These subdivisions were amended to provide the correct references for the prescriptive requirements and additions and alterations Sections of the Standards. The specific purpose and rationale for these changes is the added edits help to make the Standards language more enforceable.

## **SECTION 10-114 – DETERMINATION OF OUTDOOR LIGHTING ZONES, LOCAL OUTDOOR LIGHTING ORDINANCES, AND ADMINISTRATIVE RULES FOR USE**

This subdivision was amended to clarify the language for specific outdoor lighting levels. The specific purpose and rationale for these changes is that they were amended for clarity and are necessary to improve compliance with the regulations.

## **TITLE 24, PART 6 EFFICIENCY STANDARDS**

### **SUBCHAPTER 1: ALL OCCUPANCIES—GENERAL PROVISIONS**

#### **SECTION 100 – SCOPE**

**Subdivision** (e)2Bi

**Subdivision** (e)2C

**Subdivision** (e)5

**Subdivision** (e)6

These subdivisions were amended to correct Section numbers. The specific purpose and rationale for these changes are for clarification, which was necessary to improve compliance with the regulations

#### **SECTION 101 – DEFINITIONS AND RULES OF CONSTRUCTION**

**Subdivision** (b)

The amendments to this subdivision added new definitions, deleted obsolete definitions, and modified existing definitions to reflect the Standards language. The specific purpose and rationale for these changes is that definitions are an integral part of the proposed standards and are necessary for enforceability of the Standards.

~~AIR DISTRIBUTION SYSTEM~~

ANSI C82.6-2005

CENTRAL FAN-INTEGRATED VENTILATION SYSTEM

~~DAYLIGHT AREA, PRIMARY SIDELIT~~

~~DAYLIGHT AREA, SECONDARY SIDELIT~~

~~DAYLIGHT AREA, SKYLIT~~

FENESTRATION PRODUCT, MANUFACTURED

~~FENESTRATION PRODUCT, SITE-BUILT~~

LIGHT EMITTING DIODE (LED)

Hybrid LED Luminaire

LED Array

LED Component

LED Driver

~~LED Lamp, Integrated~~

~~LED Lamp, Non-Integrated~~

LED Lamp

~~LED Lighting System~~

~~LED Luminaire~~

~~LED Module~~

~~LED Package~~

LED Light Engine with Integral Heat Sink

LED Luminaire

LED Module

~~LIGHTING FLOOR AREA~~

MANUFACTURED FENESTRATION PRODUCT

NONRESIDENTIAL FUNCTION AREA OR TYPE OF USE

Financial transactions

Library Reading areas

Medical and clinical care

Medical buildings and clinics

Videoconferencing studio

~~PRIMARY SIDELIT DAYLIGHT AREA~~

REFERENCE APPENDICES

~~SECONDARY SIDELIT DAYLIGHT AREA~~

~~SKYLIT DAYLIGHT AREA~~  
SOCIAL SERVICES BUILDING  
UL 1574  
UL 2108  
VISIBLE LIGHT TRANSMITTANCE

## **SUBCHAPTER 2**

### **ALL OCCUPANCIES—MANDATORY REQUIREMENTS FOR THE MANUFACTURE, CONSTRUCTION AND INSTALLATION OF SYSTEMS, EQUIPMENT AND BUILDING COMPONENTS**

#### **SECTION 113 – MANDATORY REQUIREMENTS FOR SERVICE WATER-HEATING SYSTEMS AND EQUIPMENT**

##### ***Subdivision* (c)2**

This subdivision was amended to clarify language for controls for hot water distribution systems. The specific purpose and rationale for these changes is that they were added for clarity and are necessary to improve compliance with the regulations.

#### **SECTION 114 – MANDATORY REQUIREMENTS FOR POOL AND SPA HEATING SYSTEMS AND EQUIPMENT**

##### ***Subdivision* (b)1**

This subdivision was amended to add language for installation of spa and pool. The specific purpose and rationale for these changes is that they were added for clarity and they are necessary to improve compliance with the regulations.

#### **SECTION 116 – MANDATORY REQUIREMENTS FOR FENESTRATION PRODUCTS AND EXTERIOR DOORS**

*Exception to 116(a)2*

*Exception to 116(a)3*

*Exception to 116(a)4*

##### ***Subdivision* (a)5**

*Exception to 116(a)*

Based on public input, these subdivisions were amended to add language for mandatory requirements for fenestration products and exterior doors. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

##### ***TABLE 116-A*<sup>1,2</sup>**

This table was amended to clarify the requirements for fenestration acceptance testing. The specific purpose and rationale for these changes is that they were amended for clarification and they are necessary to improve compliance with the regulations.

#### **SECTION 118 – MANDATORY REQUIREMENTS FOR INSULATION AND COOL ROOF/ROOFING PRODUCTS**

##### ***Subdivision* (a)**

##### ***Subdivision* (b)**

##### ***Subdivision* (b)1**

##### ***Subdivision* (b)2**

**EXCEPTION to 118(d)1**

Based on public comment, these sections have been edited to clarify the requirements for installation of Urea Formaldehyde Foam Insulation. The specific purpose and rationale for these changes is to provide correct cross references to other parts of the code and they are necessary to improve compliance with the regulations.

**Subdivision (g)**

Based on public comment, this section has been edited to clarify the requirements for Insulation Requirements for Heated Slab Floors. The specific purpose and rationale for these changes is to provide correct cross references to other parts of the code and they are necessary to improve compliance with the regulations.

**Subdivision (i)4B**

This section has been edited to provide correct cross reference to Table 118-B. The specific purpose and rationale for these changes is to provide correct cross references and they are necessary to improve compliance with the regulations.

**SECTION 119 – MANDATORY REQUIREMENTS FOR LIGHTING CONTROL DEVICES, BALLASTS, AND LUMINAIRES**

**Subdivision (f)1**

**Subdivision (f)8**

**Subdivision (f)9**

EXCEPTION to Section 119(e)(f) 7 & 8, 8 & 9

**Subdivision (m)**

The specific purpose and rationale for these changes to automatic daylighting control devices is that language was deleted and amended for clarity and they are necessary to improve compliance with the regulations. The exception was removed because the subdivisions it referenced had also been removed.

**SUBCHAPTER 3:**

**NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, AND HOTEL/MOTEL BUILDINGS MANDATORY REQUIREMENTS FOR SPACECONDITIONING AND SERVICE WATER-HEATING SYSTEMS AND EQUIPMENT**

**SECTION 121 – REQUIREMENTS FOR VENTILATION**

EXCEPTION 1 to Section 121(c)3B

EXCEPTION 2 to Section 121(c)3B

EXCEPTION 3 to Section 121(c)3B

EXCEPTION 4 to Section 121(c)3B

**Subdivision 4A**

**Subdivision 4F**

**Subdivision 4G**

Based on extensive public input, these sections have been edited to ensure that healthcare facilities, clinics and call centers receive adequate ventilation air. Additionally, these sections have been edited to ensure affected spaces are served by reliable equipment that will continue to provide adequate ventilation air after building occupancy begins. The specific purpose and rationale for these changes are that they clarify the criteria for determining an exception to the Standards and they are necessary to improve compliance with the regulations.

**SECTION 125 – REQUIRED NONRESIDENTIAL MECHANICAL SYSTEM ACCEPTANCE**

**Subdivision (a)**

**Subdivision (a)11**

**Subdivision (a)12**

**Subdivision (a)13**

**Subdivision (a)14**

These sections have been edited to add acceptance requirements for new mechanical compliance options which have been added to the 2008 Standards. The specific purpose and rationale for this change is that these edits are necessary to promulgate effective regulations.

## **SECTION 126 – MANDATORY REQUIREMENTS FOR REFRIGERATED WAREHOUSES**

EXCEPTION 2 to Section 126

EXCEPTION to Section 126

Based on extensive public input, these subsections have been edited to clarify the requirements for quick chilling spaces within the refrigerated warehouses. The specific purpose and rationale for this change is that it increases the energy efficiency requirements for refrigerated warehouses and it is necessary to minimize the energy costs of these buildings.

### ***Subdivision* (d)2**

Based on public input, this section has been modified to clarify the requirements for condensers that serve cooling towers. The specific purpose and rationale for this change is that it increases the energy efficiency requirements for refrigerated warehouses and it is necessary to minimize the energy costs of these buildings.

## **SUBCHAPTER 4**

## **NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, AND MOTEL/MOTEL OCCUPANCIES— MANDATORY REQUIREMENTS FOR LIGHTING SYSTEMS AND EQUIPMENT**

## **SECTION 130 – LIGHTING CONTROLS AND EQUIPMENT—GENERAL**

***Subdivision* (d)1Bi**

***Subdivision* (d)1Bii**

***Subdivision* (d)1Biii**

***Subdivision* (d)1Biv**

Changes were made to requirements for determining power for recessed luminaires. The specific purpose and rationale for these changes are to improve clarity and the organization of the Standards and it is necessary to promulgate effective regulations.

### ***Subdivision* (d)5**

Changes were made to the requirements determining power for LED luminaires. The specific purpose and rationale for this change is to improve clarity, which is necessary to promulgate effective regulations.

## **SECTION 131 – INDOOR LIGHTING CONTROLS THAT SHALL BE INSTALLED**

EXCEPTIONS 1 to Section 131(a)

EXCEPTIONS 2 to Section 131(a)

The numbering of these exceptions to area lighting controls was edited to separate into different subjects. The specific purpose and rationale for this change is to improve clarity, which is necessary to promulgate effective regulations.

***Subdivision* (c)1A**

***Subdivision* (c)1B**

***Subdivision* (c)1Bii**

***Subdivision* (c)1C**

***Subdivision* (c)1Cii**

***Subdivision* (c)1Ciii**

***Subdivision* (c)1D**

***Subdivision* (c)1Di**

**Subdivision (c)1Dii**  
**Subdivision (c)1Dihi**

Language was moved, outlining was changed, and language was edited for daylight area definitions. The specific purpose and rationale for this change is to improve clarity, and make this section consistent with other sections of the standards, which is necessary to promulgate effective regulations.

**Subdivision (c)2**  
Section 131(c)2 1  
Section 131(c)2 1A  
Section 131(c)2 1B  
Section 131(c)2 C  
Section 131(c)2 2  
Section 131(c)2 2A  
Section 131(c)2 2B  
Section 131(c)2 2C  
EXCEPTIONS to Section 131(c)2B (1 through 4)

Section 131(c)2 3  
EXCEPTIONS to Section 131(c) 2 3 (1 through 4)  
Section 131(c)2 4  
Section 131(c) 2 4A  
Section 131(c) 2 4B  
Section 131(c) 2 4C  
EXCEPTIONS to Section 131(c) 4C (1 and 2)  
EXCEPTION 3 to Section 131(c) 2D (iii);2Div  
EXCEPTION 4 to Section 131(c) 2D (iii)Eiv

Language was moved, edited for clarity, and outlining was changed and corrected for clarity for daylight area controls. The specific purpose and rationale for this change is to improve clarity, and make this section consistent with other sections of the standards, which is necessary to promulgate effective regulations.

**SECTION 132 – OUTDOOR LIGHTING CONTROLS AND EQUIPMENT**

EXCEPTIONS to Section 132(a) (1 through 8)  
EXCEPTIONS to Section 132(b) (1 through 6)  
EXCEPTIONS to Section 132(c) (1 through 6)

Outlining was changed and corrected for clarity for exceptions for outdoor lighting controls. The specific purpose and rationale for these changes is to insure clarity, which is necessary to improve compliance with the regulations.

**SUBCHAPTER 5**

**NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, AND HOTEL/MOTEL OCCUPANCIES—**  
**PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES FOR ACHIEVING ENERGY**  
**EFFICIENCY**

**SECTION 141 – PERFORMANCE APPROACH: ENERGY BUDGETS**

**Subdivision (a)1B**  
**Subdivision (c)4D**

These sections have been edited to correct minor grammatical errors and to clarify that the solar reflectances are based on aged values and not the initial values. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.



## **SECTION 143 – PRESCRIPTIVE REQUIREMENTS FOR BUILDING ENVELOPES**

EXCEPTION 2 TO SECTION 143(a)1A

EXCEPTION 3 TO SECTION 143(a)1A

EXCEPTION 4 TO SECTION 143(a)1A

The titles to these Exceptions have been modified to be clearer. There are also some edits to clarify the language. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

**Subdivision (a)2**

**Subdivision (a)4**

These Sections have been modified to clarify the R-value requirements for walls, floors, and soffits. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

**Subdivision (b)**

The title of this section has been edited to clarify that TDV Energy is the basis of the overall envelope approach. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

**Subdivision (c)**

**Subdivision (c)1**

**Subdivision (c)2**

EXCEPTION 2 to Section 143(c)

EXCEPTION 3 to Section 143(c)

Based on extensive public input, these sections have been edited to clarify the minimum skylight area for large enclosed spaces in low-rise buildings with three or fewer stories. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

## **SECTION 144 – PRESCRIPTIVE REQUIREMENTS FOR SPACE CONDITIONING SYSTEMS**

**Subdivision 5**

Based on public input, this section has been edited to clarify the requirements for water-cooled air conditioner and hydronic heat pump systems. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

## **SECTION 145 – PRESCRIPTIVE REQUIREMENTS FOR SERVICE WATER HEATING SYSTEMS**

**Subdivision (a)**

**Subdivision (b)**

**Subdivision (c)**

Based on public input, the language in this section has been simplified and correct cross references are provided. Also, the hotel/motel occupancy is now grouped together with high-rise residential rather than nonresidential occupancy because the hot water usage pattern of hotel/motels is more similar to high-rise residential rather than nonresidential occupancies. The specific purpose and rationale for these changes is that they provide consistency with related sections of the Standards and are necessary to promulgate effective regulations.

## **SECTION 146 – PRESCRIPTIVE REQUIREMENTS FOR INDOOR LIGHTING**

**Subdivision (a)2F**

A new requirement was added to disallow control credits for lighting controls that are already required by the Standards. The change was necessary to protect the California economy by saving electrical demand and energy.

**Subdivision (a)3R**

This subdivision was amended to make the language consistent with Section 150(k). The specific purpose and rationale for these changes is to add clarity which is necessary to improve compliance with the regulations.

**Subdivision 3Bi(b)**

**Subdivision 3Bii(b)**

**Subdivision 3Biv**

**Subdivision 3Biv(c)**

These sections have been amended to make clearer the requirements of the sections. The specific purpose and rationale for these changes is to add clarity which is necessary to improve compliance with the regulations.

**Table 146-C**

This table was amended to correct an error, to make clearer the requirements, and to be consistent with other sections of the Standards. The specific purpose and rationale for this change is to add clarity which is necessary to improve compliance with the regulations.

**Table 146-G**

This table was amended to correct the alpha sequence of the primary function areas. The specific purpose and rationale for this change is to add clarity which is necessary to improve compliance with the regulations.

**SUBCHAPTER 6**

**NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, AND HOTEL/MOTEL OCCUPANCIES—ADDITIONS, ALTERATIONS, AND REPAIRS**

**SECTION 149 – ADDITIONS, ALTERATIONS, AND REPAIRS TO EXISTING BUILDINGS THAT WILL BE NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, AND HOTEL/MOTEL OCCUPANCIES AND TO EXISTING OUTDOOR LIGHTING FOR THESE OCCUPANCIES AND TO INTERNALLY AND EXTERNALLY ILLUMINATED SIGNS**

**EXCEPTION 2 to Section 149(a)**

This section has been edited to correct grammatical errors, correct reference to Sections 150 and clarifications for the requirements of the existing installed electric heating. The specific purpose and rationale for these changes is that they were amended for clarity and are necessary to improve compliance with the regulations.

**Subdivision (b)1A**

**Subdivision (b)1Ai**

**EXCEPTION to Section 149(b)1Ai**

**Subdivision (b)1Aii**

**Subdivision (b)1Aiii**

**EXCEPTION 1 to Section 149(b)1Aiii**

**EXCEPTION 2 to Section 149(b)1Aii**

Based on public input, these sections were edited to clarify the intent of the language and to allow exemptions for small amounts of fenestration added in alterations. The specific purpose and rationale for this change is that it clarifies the criteria for determining an exception to the requirements for alterations and is necessary to improve compliance with the regulations.

**Subdivision (b)1B**

**Subdivision (b)1Bi**

**Subdivision (b)1Bii**

**Subdivision (b)1Biii**

**Subdivision (b)1Biv**

The language in these sections was modified to clarify that emittance refers to “thermal” emittance and reflectance refers to “solar” reflectance. The specific purpose and rationale for these changes is that it clarifies the criteria for determining an exception to the requirements for alterations and are necessary to improve compliance with the regulations.

EXCEPTION 2 to Section 149(b)1Biv

EXCEPTION 3 to Section 149(b)1Biv

EXCEPTION 4 to Section 149(b)1Biv

Based on extensive public comments, these exceptions were added to clarify the roof insulation requirements in re-roofing application where the roof deck is exposed. These exceptions allow for exemptions for unusual situations where adding insulation to existing roofs are either impossible or not cost effective. The specific purpose and rationale for these changes is that they clarify the criteria for determining an exception to the requirements for alterations and are necessary to improve compliance with the regulations.

EXCEPTION 2 to Section 149(b)1B:

Based on public input, this exception was added to clarify how the Overall Envelope TDV Energy Approach of Section 143(b) may be used instead of cool roof requirements. The specific purpose and rationale for this change is that it clarifies the criteria for determining an exception to the requirements for alterations and is necessary to improve compliance with the regulations.

**Subdivision (b)1C**

EXCEPTION 2 to Section 149(b)1C

EXCEPTION 3 to Section 149(b)1C

Based on public input, these exceptions were added to allow replacements of equivalent or lower capacity electric resistance space heaters for high rise residential apartment units and when natural gas is not available. The specific purpose and rationale for these changes is that they clarify the criteria for determining an exception to the requirements for alterations and are necessary to improve compliance with the regulations.

**Subdivision (b)1E1**

Based on extensive public comments, this section has been edited to remove any references to the programmable communication thermostats and instead requiring setback thermostats in alterations that trigger this requirement. The specific purpose and rationale for this change is that it clarifies the criteria for determining when setback thermostats are required for alterations and is necessary to improve compliance with the regulations.

#### **Subdivision (b)1F**

This section has been modified to provide correct cross references to mandatory lighting requirements. The specific purpose and rationale for this change is that it provides consistency with related sections of the Standards and is necessary to promulgate effective regulations.

#### **Subdivision (b)1H**

This section has been edited for clarity, to correct typos, and to correct cross references to other sections of the Standards. The specific purpose and rationale for this change is that it provides consistency with related sections of the Standards and it is necessary to promulgate effective regulations.

#### **Subdivision (b)1I**

This section has been edited for clarity, to correct typos, and to correct cross references to other sections of the Standards. The specific purpose and rationale for this change is that it provides consistency with related sections of the Standards and it is necessary to promulgate effective regulations.

#### **Subdivision (b)1M**

Based on public comment, this section has been added to clarify the requirements for building shells for which interior walls and ceilings are added for the first time. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to improve compliance with the regulations.

#### **EXCEPTION 3 to Section 149 (b)2 NOTE**

This Note has been edited to delete an obsolete note related to relocatable public school buildings which is not longer relevant. The specific purpose and rationale for this change is that it clarifies the criteria for performance compliance with the Standards and it is necessary to improve compliance with the regulations.

### **SUBCHAPTER 7**

### **LOW-RISE RESIDENTIAL BUILDINGS – MANDATORY FEATURES AND DEVICES**

#### **SECTION 150 – MANDATORY FEATURES AND DEVICES**

##### **Subdivision (i)**

Based on extensive public comment, this section has been edited to remove all references to programmable communicating thermostats and instead requiring setback thermostats. The specific purpose and rationale for this change is that it was amended to respond to public comment.

##### **Subdivision (j)1A**

This section was amended to state that hot water storage tank insulation must be consistent with the minimum federal standards. The specific purpose and rationale for this change is that it was amended to be consistent with the minimum federal standards.

##### **Subdivision (k)1**

EXCEPTION to Section 150(k)1

EXCEPTION 2 to Section 150(k)1

The outlining was changed to accommodate another exception, and Exception 2 was added to be consistent with other sections of the Standards. The specific purpose and rationale for this change is to provide consistency and it is necessary to promulgate effective regulations.

## EXCEPTION 2 to Section 150(k)2Aiv

The language was amended to be consistent with other sections of the Standards. The specific purpose and rationale for this change is to provide consistency and it is necessary to promulgate effective regulations

### **Subdivision (k)15**

These sections were amended to add a missing section reference. The specific purpose and rationale for this change is to provide consistency and it is necessary to promulgate effective regulations.

### **Subdivision (m)2A**

### **Subdivision (m)2B**

### **Subdivision (m)3Bi**

### **Subdivision (m)3C**

Based on public input, these sections were amended to clarify the Standards requirements related to duct system assembly procedures. The specific purpose and rationale for these changes is that they were amended for clarity and they are necessary to promulgate effective regulations.

### **Subdivision (p)1E Exception**

Based on public input, this exception was added to exempt small pumps with less than one horse power from multi-speed requirements of this Section. The rationale for this change is that it is not cost effective to have multi-speed requirements for small pool pumps.

### **Subdivision (p)2C**

Based on public input, this subdivision was amended to simplify the pressure drop requirements of elbows in a pool piping system. The specific purpose and rationale for these changes is that they increase the energy efficiency requirements of residential pool systems and they are necessary to minimize the energy costs of new buildings.

TABLE 150-C HIGH EFFICACY LUMINAIRE REQUIREMENTS NOTE<sup>2</sup>

TABLE 150-C HIGH EFFICACY LUMINAIRE REQUIREMENTS NOTE<sup>2</sup>

TABLE 150-C HIGH EFFICACY LUMINAIRE REQUIREMENTS NOTE<sup>2</sup>

This table was amended to make clearer the requirements, and to be consistent with other sections of the Standards. The specific purpose and rationale for this change is to add clarity which is necessary to improve compliance with the regulations.

## **SUBCHAPTER 8**

## **LOW-RISE RESIDENTIAL BUILDINGS—PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES**

### **SECTION 151 – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES**

#### **Subdivision (f)7Bi**

Based on public input, this subdivision was amended to specify the airflow and fan watt draw requirements in this subdivision, rather than just referring to Reference Residential Appendix RA3. The specific purpose and rationale for this change is that it was amended for clarity and it is necessary to promulgate effective regulations.

### ***Subdivision (f)9***

Based on extensive public comment, this section has been edited to remove all references to programmable communicating thermostats and instead requiring setback thermostats. The specific purpose and rationale for this change is that it was amended to respond to public comment.

### ***Subdivision (f)11***

The requirements for Central Fan Integrated Ventilation Systems were previously included in a footnote to prescriptive package tables. This subdivision has been added to include these requirements in the main body of the Standards rather than as a footnote to the component packages. The specific purpose and rationale for this change is that it was amended for clarity and it is necessary to promulgate effective regulations.

Tables 151-B, 151-C, 151-D and Notes 11 and 12

These Tables have been modified to reflect added clarifying language, proper titles, and headings for roofing products and central forced air handlers. The specific purpose and rationale for this change is that it was amended for clarity and it is necessary to promulgate effective regulations.

## **SUBCHAPTER 9**

## **LOW-RISE RESIDENTIAL BUILDINGS—ADDITIONS AND ALTERATIONS IN EXISTING LOW-RISE RESIDENTIAL BUILDINGS**

### **SECTION 152 – ENERGY EFFICIENCY STANDARDS FOR ADDITIONS AND ALTERATIONS IN EXISTING BUILDINGS THAT WILL BE LOW-RISE RESIDENTIAL OCCUPANCIES**

#### **EXCEPTION TO SECTION 152(a)1B**

The treatment of the amount of west-facing glass in additions needed clarification. Based on public input, the edits to this Exception clarifies how west-facing glass in additions must be treated. The specific purpose and rationale for this change is that it was amended for clarity and it is necessary to promulgate effective regulations.

### ***Subdivision (a)2B***

The 2005 language for this subdivision which describes the performance approach budget for existing plus addition plus alteration compliance has been very confusing. Based on public input, this subdivision has been edited to clarify how the performance budget is calculated. The specific purpose and rationale for this change is that it was amended for clarity and it is necessary to promulgate effective regulations.

### ***Subdivision (b)1Fi***

Based on extensive public comment, this section has been edited to remove all references to programmable communicating thermostats and instead requiring setback thermostats. The specific purpose and rationale for this change is that it was amended to respond to public comment.

## **APPENDIX 1-A**

## **STANDARDS AND DOCUMENTS REFERENCED IN THE ENERGY EFFICIENCY REGULATIONS**

### **NATIONAL FENESTRATION RATING COUNCIL**

The NFRC was amended with current publication dates and mailing addresses, which is necessary to ensure that standards, documents and entities referenced in the Energy Efficiency Regulations are accurate and up to date.

**SUMMARY OF COMMENTS FROM 2008 STDS COMMITTEE HEARING ON DEC 17, 2007  
SUBSEQUENT WRITTEN AND ORAL COMMENTS, AND APRIL 23, 2008 ADOPTION HEARING**

See Exhibit A

**SUMMARY OF CHANGES WITHOUT REGULATORY EFFECT (ERRATA)**

See Exhibit B

**DETERMINATION OF ALTERNATIVES CONSIDERED AND EFFECT ON PRIVATE PERSONS**

The California Energy Commission has determined that no alternative considered by the state agency or that has otherwise been identified and brought to the attention of the Commission would be more effective in carrying out the purpose of the proposed Standards or would be as effective as and less burdensome to affected private persons than the proposed Standards.

The California Energy Commission has determined that energy bill savings substantially in excess of compliance costs will be received by private persons.

**ALTERNATIVE LESSENING ADVERSE ECONOMIC IMPACTS ON SMALL BUSINESSES**

The Standards will have no adverse impact on small business. On the contrary the Standards will reduce the energy bills of businesses that own and occupy buildings subject to the Standards by substantially more than the costs to install required measures, thereby increasing the profitability of these businesses. Also, the investment in cost effective energy efficiency measures will raise the property value of the buildings, providing a substantial return on investment at the point of resale. Businesses that provide energy efficiency products and services associated with the Standards requirements (many of them small businesses) will have expanded business opportunities. During the course of the proceeding the Energy Commission encouraged stakeholders to identify aspects of the Standards that might cause difficulties, and worked with commenters to identify and incorporate alternatives that could lessen any perceived difficulties. The following trade organizations and small businesses thanked the Commission for listening to issues they raised and revising the Standards to address their concerns: California Building Industry Association, California Association of Building Energy Consultants, National Electrical Manufacturers Association, North American Insulation Manufacturers Association, California Sign Association, California lighting Technology Center, Lighting Control and Design, David Wilds Patton Lighting Design, Sunoptics, Asphalt Roofing Manufacturers Association, Single Ply Roofing Industry, Cool Metal Roofing Coalition, Iron and Steel Building Association, Metal Building Manufacturers Association, Metal Building Construction Association, Associated Roofing Contractors, Pacific Building Consultants, ConSol, Siplast and Enterprise Roofing Service.

**COMMENTS MADE BY THE OFFICE OF SMALL BUSINESS ADVOCATE**

None

**COMMENTS MADE BY THE TRADE AND COMMERCE AGENCY**

None